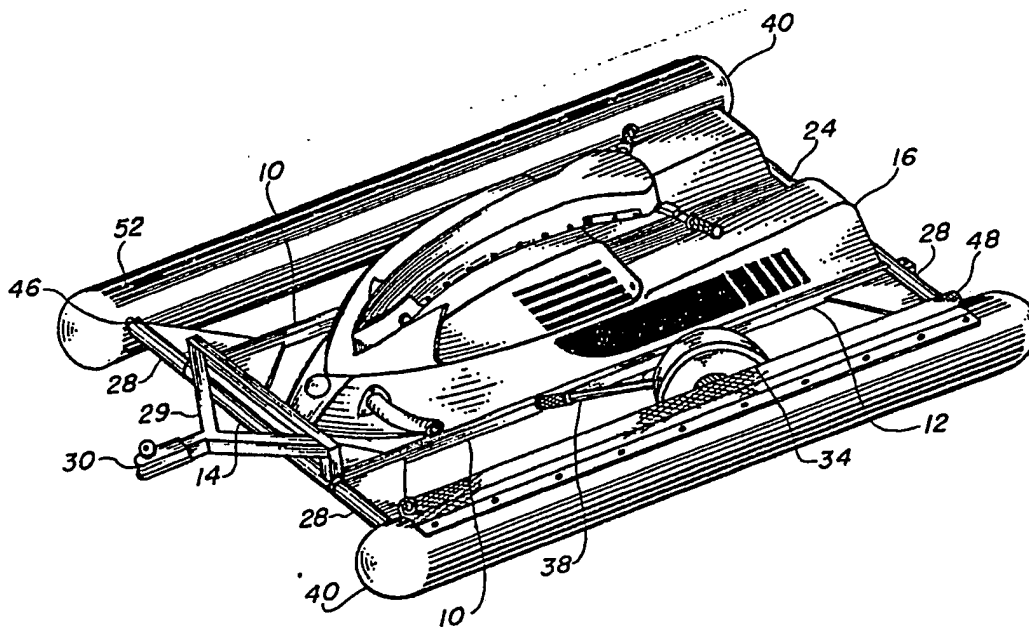




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<p>(21) International Application Number: PCT/US82/01774</p> <p>(22) International Filing Date: 20 December 1982 (20.12.82)</p> <p>(71)(72) Applicant and Inventor: KITNER, William, M. [US/US]; 3515 West 118 Place, Inglewood, CA 90303 (US).</p> <p>(74) Agent: COTA, Albert, O.; 17475 Flanders Street, Granada Hills, CA 91344 (US).</p> <p>(81) Designated States: AU, BE (European patent), CH (European patent), DE (European patent), FR (European patent), GB (European patent), JP, SE (European patent), US.</p> <p>Published With international search report.</p>		

(54) Title: WATERCRAFT TOWING AND FLOATATION DECK APPARATUS



(57) Abstract

A combined watercraft towing and floatation deck having a frame (10) encompassing a jet-type watercraft (16). A pair of wheels (34) are retractably affixed to the frame with an extension yoke (29) provided at the forward end forming a trailer for over-the-road towing. A pair of pontoons (40) are extendably attached to the sides of the frame (10), the combination being propelled by the watercraft in boat fashion. A resilient deck (48) is fixed on one pontoon (40) with the capabilities of attachment (49) on the other pontoon (40) when expanded after the watercraft is removed from its moorings forming a floatation platform.

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WATERCRAFT TOWING AND FLOATATIONDECK APPARATUSTECHNICAL FIELD

5 This invention relates in general to pontoon-type boats or rafts, trailers and motor driven propulsion systems, and more particularly to a pontoon-type boat trailer propelled by a self-contained watercraft readily converted to a floating deck when the watercraft is removed.

10 BACKGROUND ART

Previously, rafts have had retractable wheels for transportation and expandable widths, such as taught by Stockmann in U. S. Patent 3,114,157, however, no provision was made for any self-propulsion system. U. S. Patent 3,629,884 issued to Brown discloses a combination trailer and pontoon boat housing a pick-up truck type passenger accommodating camper, however, the propulsion system is provided by an outboard engine or other water propelling driven unit attached to the rear transom of the boat trailer.

20 A motor boat propelled pontoon boat is taught by Miklos in U.S. Patent 3,659,546 wherein a pontoon boat incapsulatingly receives a motor boat using its motive power to propel the pontoon craft while the combination contains utility on the water, provisions for



transportation on the land is lacking. Further of necessity, a steering arrangement is connectingly transferred from the prime mover to the pontoon craft on the deck allowing visual steering capabilities.

5 Indicative of the state of the art to which this invention pertains and for background purposes, Bawden et al in U.S. Patent 3,935,832 utilizes a snowmobile modified with a telescopically extensible drive shaft to propel a single hulled watercraft.

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DISCLOSURE OF THE INVENTION

A watercraft best known by its trademarked designation Jet-Ski, or any similar type machine operated singly from a standing position using a jet of water for propulsion, usually requires land transportation to a recreational facility. Previously this transportation is provided by an over-the-road trailer towed by a motor vehicle and is launched into the water by backing the trailer on a downwardly sloping ramp. The utility of the trailer is not realized again until the procedure is reversed.

20

The watercraft is primarily used for aquatic recreational purposes and being a single passenger vessel, the entire party must remain on land at a dock or similar boating facility.

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It is, therefore, the primary object to provide a combination trailer and floatation platform that fills the need to provide accommodations for more than one watercraft operator at a convenient location on water, as well as provide land transportation to the aquatic recreational area itself. This object is accomplished by deploying a trailer that is removable from a land vehicle and provides its own floatation in the form of pontoons. This arrangement allows the watercraft, while still captive within the trailer, to be the prime

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mover propelling the platform along with passengers to a convenient location. The apparatus is guided or steered by the watercraft using a directional flow of high pressure water in jet fashion.

5 An important object allows the wheels of the trailer to be retracted upward from the frame decreasing the drag or restriction within the water during movement.

Another object is the application of an expandable outrigger arrangement inherent in the frame allowing the
10 pontoon to be further separated converting the platform into a raft of convenient size for occupants.

Still another object allows the removal of the watercraft from the raft after the outriggers are expanded and the addition of resilient material stretched between the pontoons forming a deck. This deck
15 provides a convenient location for lounging or sunbathing while waiting in turn to operate the watercraft.

These and other objects and advantages of the present invention will become apparent from the subsequent detailed description of the preferred embodiment
20 and the appended claims taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a partial isometric view of the
25 preferred embodiment.

FIGURE 2 is a side elevational view of the preferred embodiment with the watercraft in place and the wheels extended for over-the-road use.

FIGURE 3 is a plan view of the preferred embodiment, as above.
30

FIGURE 4 is a sectional view taken along lines 4-4 of FIGURE 1.



FIGURE 5 is a plan view of the preferred embodiment with the pontoons extended, the deck in place, the wheels retracted and the watercraft removed, as in the raft configuration.

FIGURE 6 is a sectional view taken along lines 6-6 of FIGURE 5.

FIGURE 7 is a partial plan view with the pontoons extended and the gate member opened.

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BEST MODE FOR CARRYING OUT THE INVENTION

Referring now more specifically to the referenced characters of the drawings, the invention in the preferred embodiment utilizes a frame 10 of metallic composition having the structural integrity for the purpose, such as steel, aluminum magnesium, or the like. The frame 10 may be any configuration that conveniently surrounds a jet propelled watercraft, such as a so-called Jet-Ski 16, however, the preferred embodiment employs the use of a pair of structural channels 12 along the longitudinal portion, each being planar and parallel slightly longer than the outline of the watercraft itself. A hollow front member 14 separates the channels 12 at the front forming a C-shaped assembly. The watercraft 16 is fabricated with a flange on the periphery directly above the waterline that interfaces with the internal face of the frame channel members 12. resting on the lower inside leg. A channel shaped front mount 18 integral with the hollow member 14 provides a recess to retain the flange on the bow of the watercraft. The entire frame on three sides then receives and retains the craft 16, as it is slid into the inside of the channel members 12 restricting movement thereof. The front mount 18 further contains hole 20 through both flanges and the craft 16 also contains a hole that is in line when the craft is slid into place. A



fastener 22 is placed through the aligned holes locking the craft to the frame 10. This fastener 22 may be of any type suitable for the purpose, such as a retaining pin, spring loaded ball pin or a threaded fastener i.e. a screw and nut. A hollow gate member 24 encloses the frame 10 into a box section attaching the rear ends of the channels 14 together. This gate member 24 is hinged on one end allowing it to swing out of place for entry or exit of the watercraft 16 into the frame 10. A latch 26 of any suitable type is located on the end opposite the hinge and allows integrity of the structure and also quick release of the gate itself. Further, the gate member 24 provides a safety barrier maintaining the watercraft 16 in the cavity of the frame by impeding its rearward movement. A plurality of hollow struts 28 reinforced with gussets extend from the frame at the four corners at right angles to the channels 12 and are in line with the gate 24 and the hollow front member 14.

Means for securing the frame to a road vehicle incorporate an extension yoke 29 with an integral ball hitch 30. The yoke 29 interfaces structurally to the frame 10 at the intersection of the longitudinal members 12 and front hollow member 14 in A-fashion with the apex converging at the hitch 30. A slight offset may be necessary to correspond in height with a towing vehicle, also reinforcing gussets 32 may be required to add rigidity to the structure.

Running gear is rotatably secured to the frame 10 consisting of a pair of wheels 34 having tires and hubs, spindles 36 and handles 38 to elevate the assembly for water operation. The wheels 34 may be of any size suitable for the application having pneumatic characteristics for over-the-road type transportation and include hubs with load receiving bearings for rotation thereof. The spindles 36 are contiguous with the bearings in the hubs and are attached to a structural



member allowing vertical rotation. The structural member is integral with the handle 38 and rigidly affixed in pivot fashion with an over-the-center lever arm being formed allowing the running gear to be raised vertically in relation to the frame and pontoons. This relocation reduces the drag coefficient upon the device when the trailer is used as a boat in the water. Retaining means are included to maintain the position of the handle 38 in either the over-the-road or boat configuration. A pair of pontoons 40 are slidably fixed to the frame 10 on opposed sides and are coterminus forming a flat structure or platform. These pontoons 40 provide the floatation means for the entire structure and may utilize any suitable solid material, such as fiberglass covered polyurethane, polypropylene or styrene foam, or the like. The pontoons may also be constructed of a hollow air filled rubber or metallic float or any substance having the characteristics of floatation on the waters surface. The pontoons 40 are attached slidably to the frame 10 with outriggers 42 in the form of structural members, preferably metallic, that have the same shape as the hollow gate member 24 and the hollow front member 14, except smaller. The smaller size and same shape allow the outriggers 42 to rest inside and slidably retract or expand within the corresponding members. The outriggers 42 are in pairs and are attached to the pontoons 40 on one end and align with the above members on the other. When retracted, the ends meet inside the corresponding members 14 and 24 providing a minimum overall width of the apparatus. The struts 28 are in line with the members 14 and 24 and being the same material in form and function simply extend the ends beyond the wheels.

When the pontoons are retracted in the over-the-road configuration as best shown in FIGURES 3 and 4, the ends of the outriggers 42 touch each other at the



horizontal centerline of the apparatus. When expanded the outriggers 42 slide away from each other an equal distance while still being maintained inside the members 14 and 24 and corresponding struts 28. This allows the pontoons to be relocated increasing the space between the frame 10 and the pontoons 40 providing a platform surface of a suitable size for human occupation. A pair of holes 44 are located in the outriggers 42 with a corresponding hole and pin 46 at the terminating end of each strut 28. The pins 46 are positioned through the holes in the retracted position and also in the expanded position in the second set of holes maintaining integrity of the width of the platform. The pins 46 may be the ball lock type, quick release style or a simple threaded screw and wing nut.

When the apparatus is extended, as best shown in FIGURE 5, a resilient deck 48 is stretched between the pontoons 40 forming a flat surface. The deck 40 may be of any resilient substance, such as cloth, canvas, woven thermoplastic, webbing, or the like. In the retracted position the deck 40 is rolled and stored on a pontoon 40 with one edge permanently affixed onto the top surface. The other end is removably attached to the remaining pontoon with tensioning means providing a taut connection therebetween and hence a flat surface for occupancy when the propelling watercraft is removed. This tension may be provided by any means suitable for the purpose, such as springs, over-center latches, or rope 49 threaded through grommets 50 into retaining means 52, as depicted in FIGURE 5. A pair of reinforced openings 53 allow the wheels 34 to extend above the deck in their retracted position.

As a second embodiment the deck 48 may consist of a plurality of rigid sectional planks constructed of a material that is water resistant. The planks are conventionally fastened and placed between the pontoons



40 to form a flat deck.

In operation the watercraft 16 is mounted within the frame 10, as illustrated in FIGURES 1, 2, 3, and 4 and transported over-the-road to the site of a body of water with a motor vehicle such as an automobile or light duty truck as the prime mover. The hitch 30 is attached to a corresponding ball on the vehicle and the running gear is positioned downwardly forming a trailer. The apparatus is backed into the water and disconnected from the vehicle becoming a boat as the pontoons 40 provide floatation means. The wheels 34 are retracted with handle 38 and passengers are positioned on the device with the watercraft 16 providing the propelling force and steering means. Upon reaching the destination the watercraft 16 is removed from the frame 10 by releasing the pin 22, shown in FIGURE 2, from the bow of the craft and swinging the gate member 24 away from the frame 10 upon removal of the latch 26, as illustrated in FIGURE 7. The watercraft 16 is then slid from the moorings between the channels 12 and is then used for recreational purposes. The gate member 24 is then closed and latched and the pins 46 are removed from the holes 44 allowing the pontoons 40 to be extended. The pins 46 are then replaced in the second set of matching holes 44 and the deck 48 is unrolled and tensioned with the rope 49 threaded through grommets 50 to the retaining means 52. This configuration is depicted in FIGURES 5, 6, and 7 and provides a raft for the occupants while waiting their turn to utilize the watercraft, or the like. The reverse procedure is followed upon return.



- While the invention has been described in complete detail and pictorially shown in the accompanying drawings, it is not to be limited to such details, since many changes and modifications may be made to the
- 5 Watercraft Towing and Floatation Deck Apparatus without departing from the spirit and scope thereof. Hence, it is described to cover any and all modifications and forms which may come within the language and scope of the claims.



CLAIMS

1. A watercraft towing and floatation deck apparatus comprising:
- 5 a. a frame having means to receive and retain the propelling watercraft and attachment means for securing to a road vehicle;
- b. running gear rotatably secured to said frame defining trailer wheels allowing mobility for over-the-road transportation with a motor vehicle as the prime mover; and,
- 10 c. a pair of pontoons fixed to said frame on opposed sides coterminus and planar therewith providing floatation of the entire apparatus.
2. The apparatus as specified in claim 1 wherein said frame further comprises a plurality of expandable
- 15 outriggers integral with and slidably affixed to said frame and said pontoons for enlarging the overall size of the apparatus by increasing the space between the frame and the pontoons.
3. The apparatus as specified in claim 1 wherein
- 20 said running gear further comprises:
- a. a pair of hubs on said trailer wheels having a bearing structure for rotation thereupon;
- b. a pair of spindles disposed in said hubs for mounting thereon;
- 25 c. means to rotatably connect said spindles to said frame; and,
- d. handle means rigidly affixed to said rotating means for manually raising said running gear vertically in relation to said frame and pontoons reducing drag
- 30 upon the apparatus when placed upon the surface of a body of water.



4. The apparatus as specified in claim 1 wherein
said road vehicle attachment means further comprises an
extension yoke integral and contiguous with said frame
with a ball hitch affixed thereto for interfacing with
5 a motor driven vehicle providing over-the-road trans-
portation of the trailer apparatus.

5. The apparatus as specified in claim 1 further
comprising a resilient deck with one end permanently
fixed to the first pontoon and the other end removably
10 attached to the second pontoon providing a flat surface
therebetween for occupancy when said propelling water-
craft is removed.

6. A watercraft towing and floatation deck apparatus
comprising:

15 a. a motor driven watercraft of the type having a
water jet propulsion and steering system;

b. a frame having means to receive and retain
said watercraft and attaching means for securement to a
road vehicle defined by a trailer hitch on an extending
20 yoke;

c. a pair of wheels rotatably fixed to said frame
through spindles and connection means having a handle
for manually raising said wheels vertically in relation
to said frame reducing drag upon the apparatus in water;

25 d. a pair of pontoons fixed to said frame on
opposed sides coterminus and planar therewith providing
floatation of the entire apparatus;

e. a plurality of expandable outriggers integral
with and slidably affixed to said frame and said ponto-
30 ons for enlarging the overall size of the device by
increasing the space between the frame and the pontoons;
and,



f. a resilient deck with one end permanently attached to the first of said pair of pontoons and the other end removably attached to the second pontoon providing a flat deck therebetween for occupancy when
5 said motor driven watercraft is removed.

7. The apparatus as specified in claim 6 wherein said deck consists of a plurality of rigid planks placed between said pontoons to form a flat deck.

8. The apparatus as specified in claim 6 wherein
10 said pontoons are comprised of a hollow air filled float.

9. The apparatus as specified in claim 6 wherein said pontoons are comprised of a solid float.



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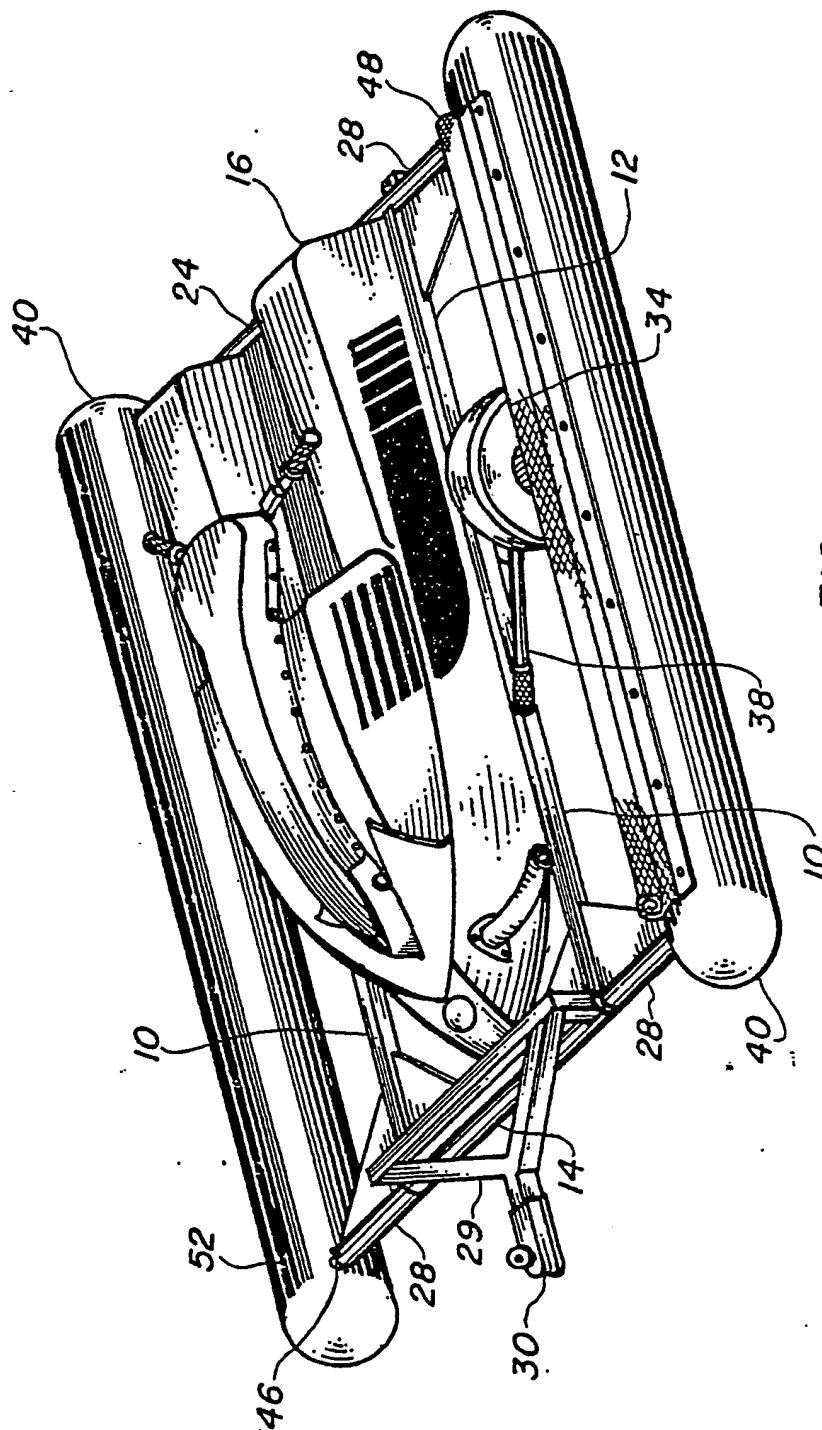
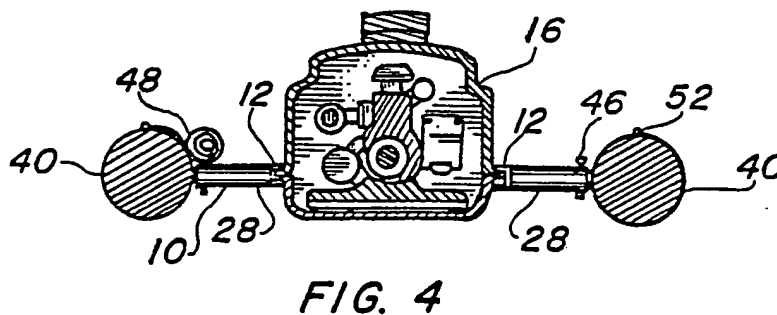
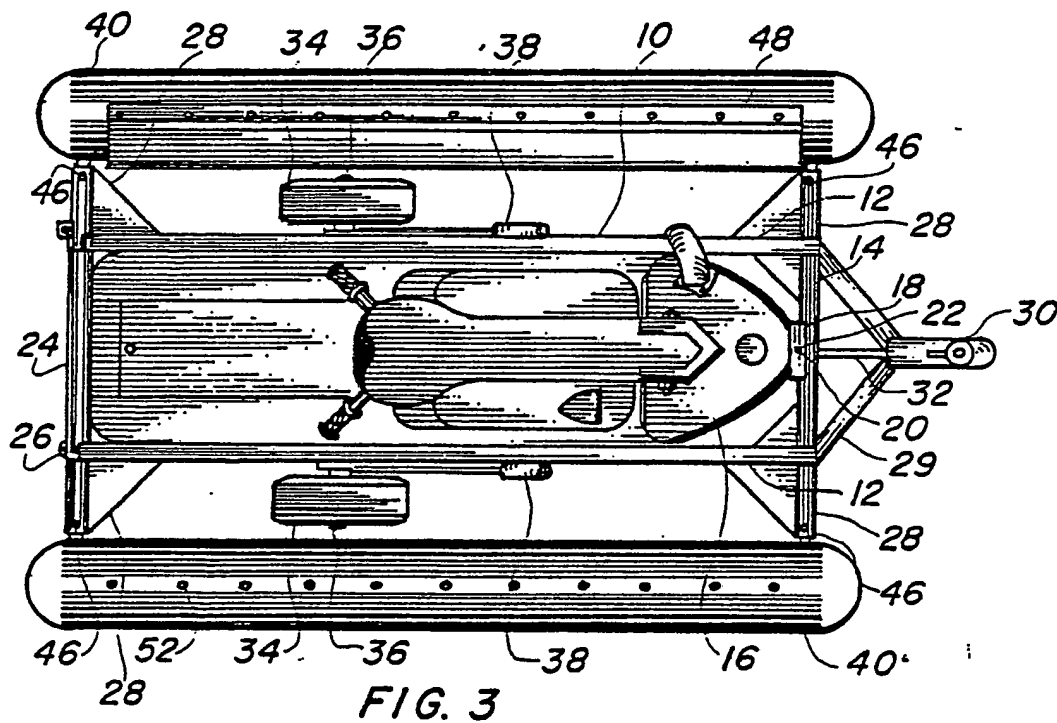
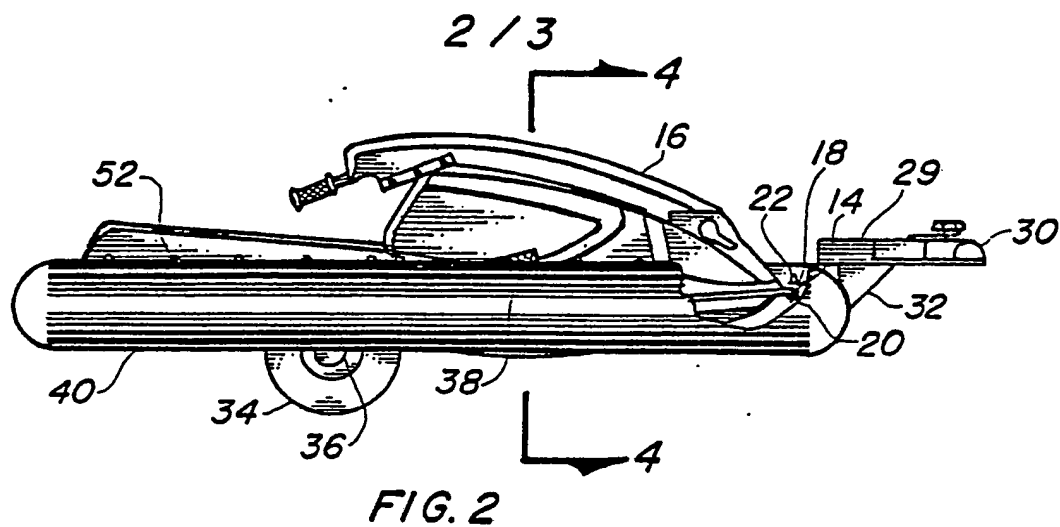
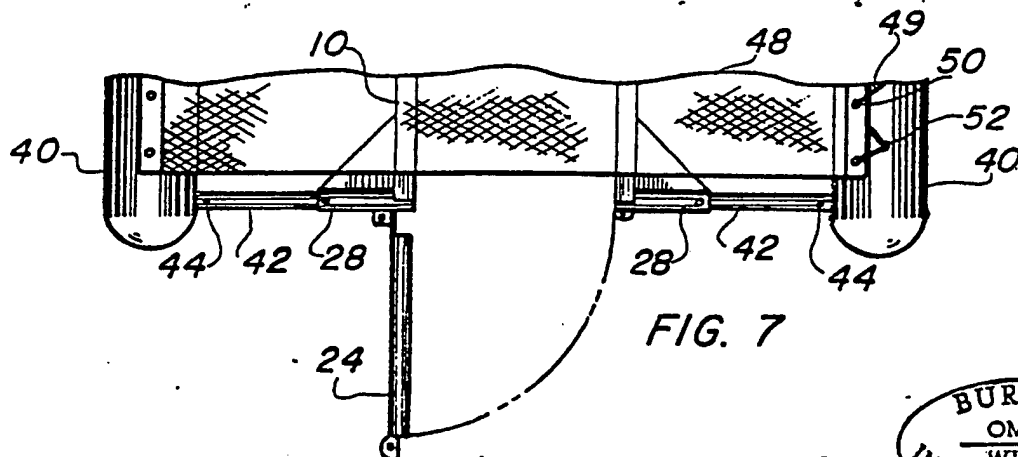
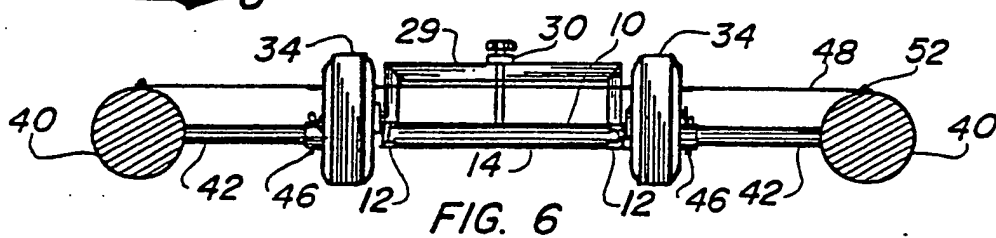
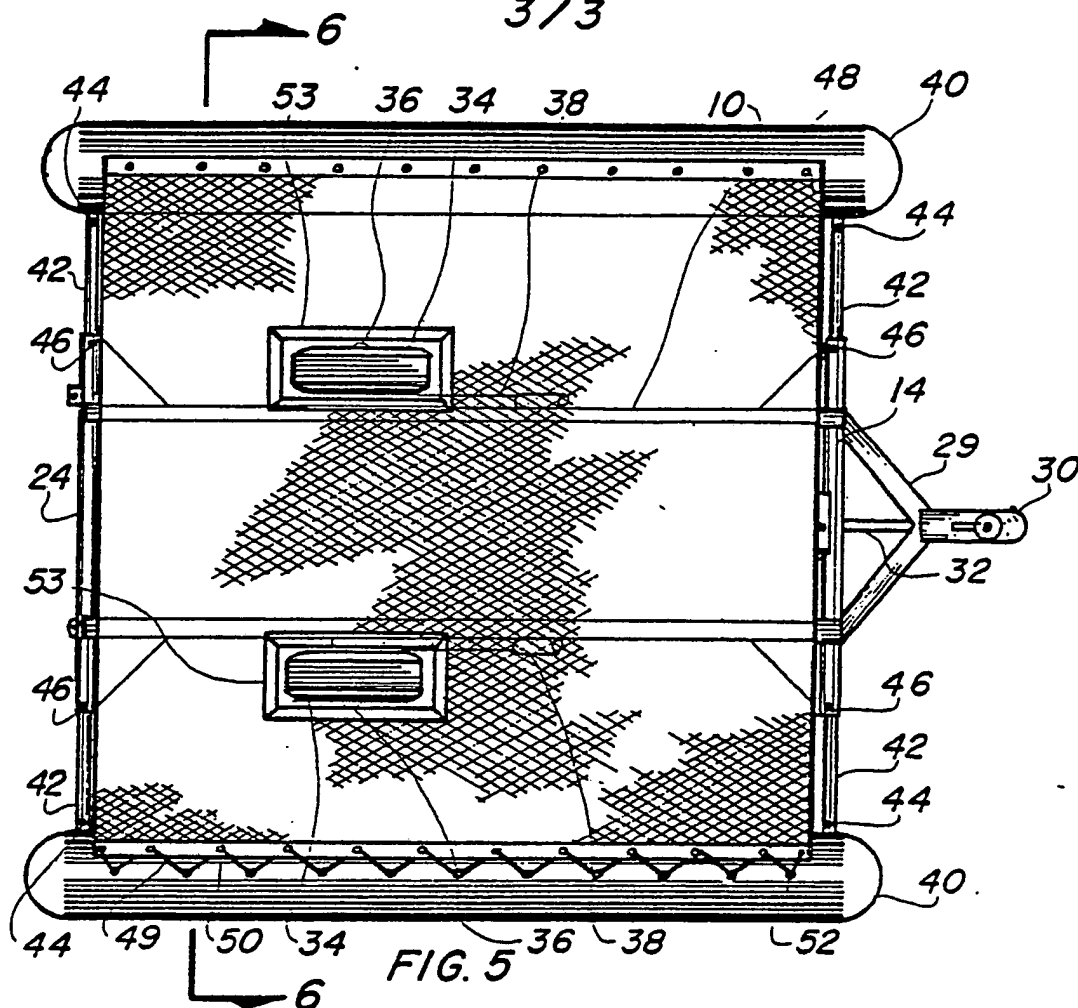


FIG. 1

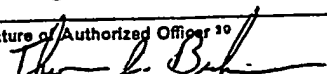


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INTERNATIONAL SEARCH REPORT

International Application No PCT/US 82/01774

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ¹		
According to International Patent Classification (IPC) or to both National Classification and IPC Int. Cl. ³ B63C 13/00 U.S. Cl. 114/344		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System	Classification Symbols	
US	114/344, 123, 263, 248	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category ⁹	Citation of Document, ¹⁶ with Indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
A	US, A, 3,126,855, Published 31 March 1964, Freeburg.	
A	US, A, 3,815,541, Published 11 June 1974, Hansen.	
A	US, A, 2,984,845, Published 23 May 1961, Gregoire.	
A	US, A, 3,289,225, Published 06 December 1966, Isch et al.	
A	US, A, 3,835,491, Published 17 September 1974, Aine.	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>[*] Special categories of cited documents: ¹⁵</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 45%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ³	Date of Mailing of this International Search Report ⁴	
25 March 1983	07 APR 1983	
International Searching Authority ¹	Signature of Authorized Officer ¹⁰	
ISA/US	 Thomas J. Brahan	